

IS THE WATER SAFE?

THINK BEFORE YOU DRINK

The Hidden Hazard

We hope your visit to your National Parks will be enjoyable...and it will be if you avoid hazards encountered in the great out of doors. Two hidden hazards you should know about are diseases resulting from drinking untreated "natural" water. These diseases are Giardiasis and Cryptosporidiosis, and their effects on you can be quite severe, and for some, life threatening.

Do not be fooled by natural waters in lakes, streams and rivers that may be clear, cold, and free-running. They may look, smell, and taste good, and you may see wildlife drinking from them without hesitation. In spite of all that, *Giardia lamblia* cysts, and *Cryptosporidium parvum* oocysts that are carried in the feces of humans and animals may contaminate surface waters, all of which should be suspected of harboring these organisms.

Giardiasis--Symptoms and Treatment

While Giardiasis can be incapacitating, it is not, as a rule, life threatening. Following ingestion by humans *Giardia* attaches to the wall of the small intestine.

Disease symptoms usually include chronic diarrhea, increased gas, abdominal cramps, bloating, and fatigue. Weight loss may occur from nausea and loss of appetite. These discomforts may first appear a few days to a few weeks after ingestion, and may last up to six weeks.

Most people are unknowingly infected and have often returned home from vacations before the onset of symptoms. If not treated, the symptoms may resolve on their own, only to recur intermittently over a period of many months. With proper diagnosis, Giardiasis is curable with medication prescribed by a physician.

Cryptosporidiosis--Symptoms and Treatment

Cryptosporidiosis can be incapacitating for those with healthy immune systems, but life threatening for those with compromised immune systems including AIDS patients, cancer patients undergoing chemotherapy, transplant patients using immuno-suppressive medication, persons with viral illnesses such as chicken pox or measles, the very young, and the elderly.

Disease symptoms usually include watery and profuse diarrhea, abdominal cramps, nausea, and less frequently fever, headache, and vomiting. Symptoms may appear a few days to a few weeks after ingestion, and may

subside and then recur for several weeks.

There is no safe or effective treatment for Cryptosporidiosis. Persons with healthy immune systems improve without medication. Those with compromised immune systems may develop a severe, long-lasting infection, with diarrhea, that persists for several weeks to months, or even years.

If you have any of these symptoms and drank untreated water, you should suspect either Giardiasis or Cryptosporidiosis and so inform your doctor.

Protect Yourself

There are few ways for you to treat raw water to make it safe to drink.

- The most certain treatment to destroy *Giardia* and *Cryptosporidium* is to bring water to a rolling boil for at least one minute. Boiling will also destroy other organisms causing waterborne disease, although at high altitudes you should maintain the boil 3 - 5 minutes for an additional margin of safety.

- A far less reliable treatment is the use of portable water filters. Some claim to remove *Giardia* cysts and *Cryptosporidium* oocysts, but test protocols are not uniform in the industry and many have not been tested in unbiased laboratories. Purchase only from reputable dealers, and check

product literature to ensure that the filter is labeled according to filter manufacturing standards as at least an "Absolute" 1 micron filter, or is labeled as meeting American National Standards Institute (ANSI/NSF) (formerly the National Sanitation Foundation) International Standard #53 for "Cyst Removal". No other filters are reliable for removing Giardia and Cryptosporidium.

- Chemical disinfectants such as iodine or chlorine tablets or drops are not reliable for killing Giardia cysts and Cryptosporidium oocysts. These disinfectants do work well against most disease causing waterborne bacteria and viruses that may not be removed by filtration so water that has been filtered should be disinfected before consumption. Add 8 drops of liquid household bleach or 20 drops of tincture of iodine per gallon of water and let stand for 30 minutes. Double the concentration if the water is cloudy. (Iodine and chlorine tablets are available in drug stores and camping or sporting stores. Use according to directions.)

- For short trips, take a supply of water from home or from other treated domestic sources. Due to the lack of labeling and manufacturing standards, there is no assurance that bottled water is safer than public drinking water and may require boiling also.

Protect Others

Giardia can be readily transmitted between humans and animals, and feces (human or animal waste) can contain these organisms.

- Human waste should be buried 8 inches deep and at least 100 feet away from natural waters.
- Practice good personal hygiene. Wash hands before handling food, eating, and using the toilet

REFERENCES

Health Information, National Center for Infectious Diseases, Centers for Disease Control and Prevention,
Department of Health and Human Services

If you have any questions, please contact your Regional Public Health Consultant or park sanitarian, or call WASO Public Health for more information at 202-565-1120 or see our NPS Public Health web page at www.nps.gov/public_health

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